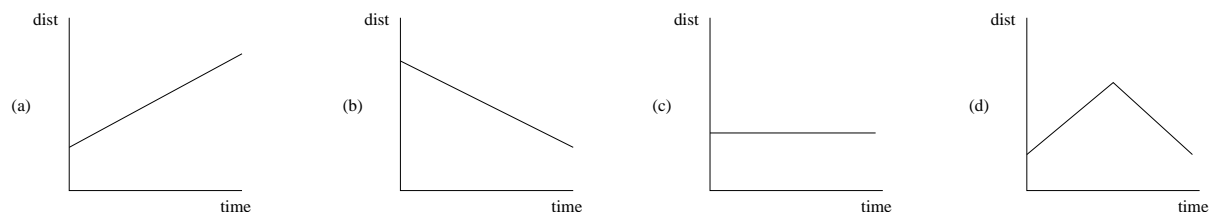


**NO CALCULATORS on these, unless you want to use them to CHECK your work.** All answers should be **simplified**. **Show all your work.** Attach additional pages if you need more space on any problem. Most of these must be correct in order to receive your ALEKS code and begin your online practice!

**Question 1.** Choose the graph that best matches the verbal statement: “Mary walked at a steady pace toward the tree.” (Note: dist on the vertical axis stands for **distance from the tree**.)



DEFEND your answer:

**Question 2.** Sketch the graphs of  $f(x) = e^{-x}$  and  $f(x) = \ln x$ .

**Question 3.** Solve the following equation. (Hint: Start by factoring.)

$$(2x + 3)^{-2}(2)(x - 1) + (-2)(2x + 3)^{-3}(2)(x - 1)^2 = 0$$

**Question 4**

(a) Find all values of  $x$  on the interval  $[0, 2\pi)$  such that  $2 \cos x = 1$ .

(b) Find all values of  $x$  on the interval  $[0, 2\pi)$  such that  $\sin^2 x = \sin x$ .

(c) Solve:  $3x^2e^x - x^3e^x = 0$ .

**Question 5.**

(a) If  $f(x) = x^2 - 4$ , evaluate and simplify  $\frac{f(x+h)-f(x)}{h}$ .

(b) Find the domain of  $g(x) = \frac{\sqrt{x}}{x^2-4}$ . Is  $g(x)$  a rational function? An algebraic function?

**Question 6.** Use properties of logarithms to write the following as the sum, difference, and/or multiple of logarithms.

$$\ln \left( \frac{x \tan^2 x}{\sqrt{x+2}} \right)$$